SEDIMENTATION AND SEDIMENT QUALITY IN THE NORTH LANDING RIVER, CURRITUCK SOUND ESTUARINE SYSTEM, NORTH CAROLINA

INTRODUCTION

In February and March of 1991, the U.S. Army Corps of Engineers carried out a maintenance dredging project for the Atlantic Intracoastal Waterway in the North Landing River of Virginia (Fig. 1). The project area extended from the mouth of Blackwater River southward to the Virginia--North Carolina line (Fig. 2). A letter dated April 9, 1991 from Cottrell Engineering Corp. stated that the project actually removed 361,677 yds^3 of dredged material from the North Landing River. U.S. Army Corps of Engineers dredging records demonstrate that the Virginia portion of the North Landing River had also been dredged in 1981 (422,740 yds^3) and in 1986 (343,140 yds^3).

This dredged material was disposed of in shallow, open-water estuarine sites on the west side of North Landing River navigation channel (Fig. 3). The dredged material was placed in four unconfined disposal areas between 200 and 500 meters from the channel. The U.S. Army Corps of Engineers concluded that these disposal sites were "very sparsely populated by benthic organisms and aquatic vegetation" and that there would be "no adverse impacts on wetlands and only minor and temporary impacts on fish, water quality and the terrestrial environment" (USACE, Environmental Assessment).

Dredging of the Intracoastal Waterway has also taken place within the North Carolina portion of the North Landing River. According to U.S. Army Corps of Engineers dredging records, this section was dredged in 1946 and again in 1965. The dredged materials were deposited in the shallow estuarine waters along the east side of the navigation channel and often behind bulkheads (Fig. 3).

The present study was undertaken at the request of Currituck County in North Carolina in an effort to obtain a preliminary understanding of the sedimentology of the North Landing River. The County was concerned about the maintenance dredging project of the Atlantic Intracoastal Waterway in the northern portion of the North Landing River. Consequently, a small contract was let to begin to evaluate the short-term and sedimentological response of the disposal of dredged materials and its potential effect upon the sediment quality within the immediate estuarine area.